



DOE/NV--1238

Annual Transportation Report for Radioactive Waste Shipments to and from the Nevada Test Site



Fiscal Year 2007

December 2007



U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

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ANNUAL TRANSPORTATION REPORT FY 2007

**Radioactive Waste Shipments
to and from the Nevada Test Site (NTS)**

December 2007

**United States Department of Energy
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada**

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1.0 INTRODUCTION

In February 1997, the U.S. Department of Energy, Nevada Operations Office (now known as the Nevada Site Office) issued the Mitigation Action Plan which addressed potential impacts described in the “Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada” (DOE/EIS 0243). The U.S. Department of Energy, Nevada Operations Office committed to several actions, including the preparation of an annual report, which summarizes waste shipments to and from the Nevada Test Site (NTS) Radioactive Waste Management Site (RWMS) at Area 5. No shipments were disposed of at Area 3 in fiscal year (FY) 2007. This document satisfies requirements regarding low-level radioactive waste (LLW) and mixed low-level radioactive waste (MLLW) transported to or from the NTS during FY 2007. In addition, this document provides shipment, volume, and route information on transuranic (TRU) waste shipped from the NTS to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. This outbound shipping campaign began in FY 2004.

This report has been prepared in accordance with the specifications contained in Section 4.1.1 (Commitments) of the “NTS Environmental Impact Statement, Mitigation Action Plan” (February 1997). Tabular summaries are provided which include the following data:

- Sources of and carriers for LLW and MLLW shipments to or from the NTS;
- Number and external volume of LLW and MLLW shipments;
- Identification of highway routes used by carriers; and
- Incident/accident data applicable to LLW and MLLW shipments.

2.0 SUMMARY OF WASTE SHIPMENTS (FY 2007)

Inbound/Off-site LLW

A total of 734,047 ft³ of LLW was disposed at the NTS RWMS in FY 2007, consisting of 1,002 inbound/off-site shipments, from 16 approved generators. These shipments were transported on 15 approved motor carriers (including government vehicles).

Inbound/Off-site MLLW

A total of 134 MLLW inbound/off-site shipments were received at the NTS in FY 2007, from seven (7) approved generators, totaling 140,144 ft³. These shipments were transported on nine (9) approved motor carriers.

Total Inbound/Off-site LLW and MLLW

A total of 874,191 ft³ of LLW was disposed at the NTS in FY 2007 by 17 approved off-site generators in 1,136 shipments, transported on 16 approved motor carriers.

On-site LLW

Two approved on-site generators disposed 59,469 ft³ of LLW in 110 on-site transfers during FY 2007. Government (contractor) vehicles were used for these transfers.

On-site MLLW

Twenty on-site transfers accounted for 10,169 ft³ of MLLW being disposed by two (2) on-site generators in FY 2007.

Outbound/Off-site LLW

No outbound/off-site shipments of LLW were made in FY 2007 by NTS tenants. However, one shipment containing 1,359 ft³ of LLW that was shipped to the NTS by the Portsmouth Gaseous Diffusion Plant in FY 2007 was returned by the generator due to non-compliance, using an approved carrier.

Outbound/Off-site MLLW

Ten outbound shipments containing 3,020 ft³ of MLLW were made from the NTS. National Security Technologies, LLC (NSTec), the Management and Operations contractor at the NTS, made one (1) shipment to Waste Control Specialists in Andrews, Texas, eight (8) shipments to EnergySolutions near Clive, Utah and one (1) to Permafix ME&C in Tennessee.

Outbound/Off-site Transuranic (TRU) Waste

No TRU waste shipments were made from the NTS to WIPP in FY 2007.

Table 1 provides a summary of inbound, outbound, and on-site shipments for FY 2007. Names and codes for approved generators and carriers used in this report are located in Tables 2 and 3, respectively.

Table 1. FY 2007 NTS Inbound, Outbound and On-site Summary Information

Inbound	Off-site Generators	NTS Generators	Approved Carriers	Shipments	Volume ft³
LLW (off-site)	16	1	15	1,002	734,047
MLLW (off-site)	7	0	9	134	140,144
LLW (on-site)	0	2	1	110	59,469
MLLW (on-site)	0	2	1	20	10,169
Outbound	Off-site Generators	NTS Generators	Approved Carriers	Shipments	Volume ft³
LLW	1 ¹	0	0	1	1,359
MLLW	0	1	4 ²	10	3,020
TRU	0	0	0	0	0
¹ / Portsmouth Gaseous Diffusion Plant LLW shipment POL0715 (1,359 ft ³) was returned to generator via Specialty Transport.					
² / CAST Transportation, MP Environmental Services, Specialty Transport, and Tri-State Motor Transit were utilized for MLLW shipments.					

Table 2. List of Approved Generators Shipping To/From the NTS

APPROVED GENERATOR, STATE	GENERATOR CODE
BECHTEL JACOBS OAK RIDGE, TN	OR
BOEING ROCKETDYNE, CA	BN
BWXT Y-12 PLANT, TN	BW
DURATEK, OAK RIDGE, TN	DR
FOSTER WHEELER, TN	FW
IDAHO NATIONAL LABORATORY, ID	IN
LAWRENCE LIVERMORE NATIONAL LAB, CA	LL
NATIONAL SECURITY TECHNOLOGIES, NV AND OK ^{3/}	DP
NUCLEAR FUEL SERVICES, TN	NF
PADUCAH GASEOUS DIFFUSION PLANT, TN	PD
PANTEX PLANT, TX	PX
PERMAFIX (M&CE), TN	PF
PORTSMOUTH GASEOUS DIFFUSION PLANT, OH	PO
PRINCETON PLASMA PHYSICS LAB, NJ	PL
SANDIA NATIONAL LAB, NM	SA
STOLLER-NAVARRO JOINT VENTURE, NV ^{4/}	IT
WASHINGTON SAVANNAH RIVER, SC	SR
WEST VALLEY DEMONSTRATION PROJECT, NY	WV

^{3/} On-site, Inbound and Outbound

^{4/} On-site Only

Table 3. List of Approved Motor Carriers Utilized in FY 2007

APPROVED MOTOR CARRIER	CARRIER CODE
AJ METLER	MAJH
BUFFALO FUEL COMPANY	BFUI
CAST TRANSPORTATION	COLO
FEDEX CUSTOM CRITICAL	FDCC
FLUID TRANSPORTS	FLAI
GOVERNMENT VEHICLE	GT+
HITTMAN TRANSPORT	HITT
HUBBARD TRUCKING	HUB+
INTERSTATE VENTURES	ITSV
LANDSTAR LIGON	LIGS
LANDSTAR RANGER	LRGR
MP ENVIRONMENTAL	MPES
R&R TRUCKING	RRUK
SOUTHERN FREIGHT LOGISTICS	SFLG
SPECIALTY TRANSPORT ^{5/}	SPLC
TAG TRANSPORT	TAGD
TRI-STATE MOTOR TRANSIT	TSMT

^{5/} Portsmouth Gaseous Diffusion Plant LLW shipment POL0715 (1,359 ft³) was returned to generator via Specialty Transport.

2.1 Waste Transporters (Motor Carriers)

Generators often use more than one motor carrier to facilitate their shipments. Table 4 identifies each generator and the corresponding carrier(s) utilized for transport of inbound, off-site LLW shipments. Table 5 identifies each generator and the corresponding carrier(s) utilized for transport of outbound, off-site shipments of MLLW. Table 6 identifies each generator and the corresponding carrier(s) utilized for transport of on-site transfers of LLW and MLLW. Motor carriers operate in compliance with regulations located in Title 49 Code of Federal Regulations, "Transportation," and are selected by the generator.

Table 4. Waste Transporters Utilized by Generators for Inbound Shipments (number of shipments)

	BN	BW	DR	FW	IN	LL	DP	NF	OR	PD	PX	PF	PO	PL	SA	SR	WV
MAJH		97					8	7	28			4	80				
BFUI																	119
COLO																	190
FDCC																1	
FLAI											2				12		
GT+						12											
HITT			1		6	1			1			23				7	8
HUB+													19				
ITSV				4				4									175
LIGS						3	4										
LRGR																1	
MPES	18					9	26										
RRUK						6	20	5					41				
SFLG								48									
TAGD									2								
TSMT		37			52	15	13			1		3	7	1		15	

Table 5. Waste Transporters Utilized by NTS Approved Generators for Outbound Shipments

	DP	PO
COLO	3	
TSMT	1	
MPES	5	
SPLC	1	1 ^{6/}

6/ Portsmouth Gaseous Diffusion Plant LLW shipment POL0715 (1,359 ft³) was returned to generator via Specialty Transport.

Table 6. Waste Transporters Utilized by NTS Generators for On-site Transfers

	DP	IT
GT+	97	33

2.2 Shipments and Volume

Table 7 provides a summary of all LLW, MLLW, and TRU waste shipments, including volume, to and from the NTS during FY 2007.

Table 7. Shipments and Volumes of Waste Sent To and From the NTS (FY 2007)

Off-site Inbound Low Level & Mixed Low Level Waste Shipments		Shipments by Quarter					Volume (ft3)
Generator Code		1st	2nd	3rd	4th	Total	
BN		9	7	0	2	18	11,740
BW		15	31	42	46	134	148,822
DR		0	0	1	0	1	110
FW		0	0	4	0	4	5,933
IN		6	10	14	28	58	28,022
LL		10	18	13	5	46	48,217
DP		0	41	4	26	71	70,017
NF		11	18	13	22	64	72,232
OR		9	1	4	17	31	32,395
PD		0	0	1	0	1	960
PX		0	0	1	1	2	2,203
PF		1	19	9	1	30	24,804
PO		2	24	78	43	147	172,054
PL		0	0	0	1	1	409
SA		0	3	3	6	12	5,058
SR		21	0	2	1	24	2,710
WV		47	34	140	271	492	248,505
Totals		131	206	329	470	1,136	874,191
On-site Low Level Waste Transfers		Shipments by Quarter					Volume (ft3)
Generator Code		1st	2nd	3rd	4th	Total	
DP		6	74	1	7	88	35,957
IT		1	0	1	20	22	23,512
Total		7	74	2	27	110	59,469
On-site Mixed Low-Level Waste Transfers		Shipments by Quarter					Volume (ft3)
		1st	2nd	3rd	4th	Total	
DP		0	0	0	9	9	2,745
IT		0	0	0	11	11	7,424
		0	0	0	20	20	10,169
Outbound Mixed Low-Level Waste Shipments		Shipments by Quarter					Volume (ft3)
Generator Code		1st	2nd	3rd	4th	Total	
DP		2	1	0	7	10	3,020
Outbound Low-Level Waste Shipments		Shipments by Quarter					Volume (ft3)
Generator Code		1st	2nd	3rd	4th	Total	
PO		0	0	0	1	1	1,359
Outbound Transuranic Waste Shipments		Shipments by Quarter					Volume (ft3)
Generator Code		1st	2nd	3rd	4th	Total	
DP		0	0	0	0	0	0

2.3 Transportation Routes

Seventeen out-of-state approved generators shipped LLW and MLLW to the NTS for disposal in FY 2007. NSTec initiated 41 shipments from Gore, Oklahoma, four (4) shipments from Creech Air Force Base in Nevada, and 26 shipments from the Tonopah Test Range in Nevada, to the NTS in FY 2007. Table 8 provides specific routes utilized by each generator and the number of shipments in FY 2007. Figures 1 and 2 provide graphical interpretations of the general cross country and regional transportation routes, respectively.

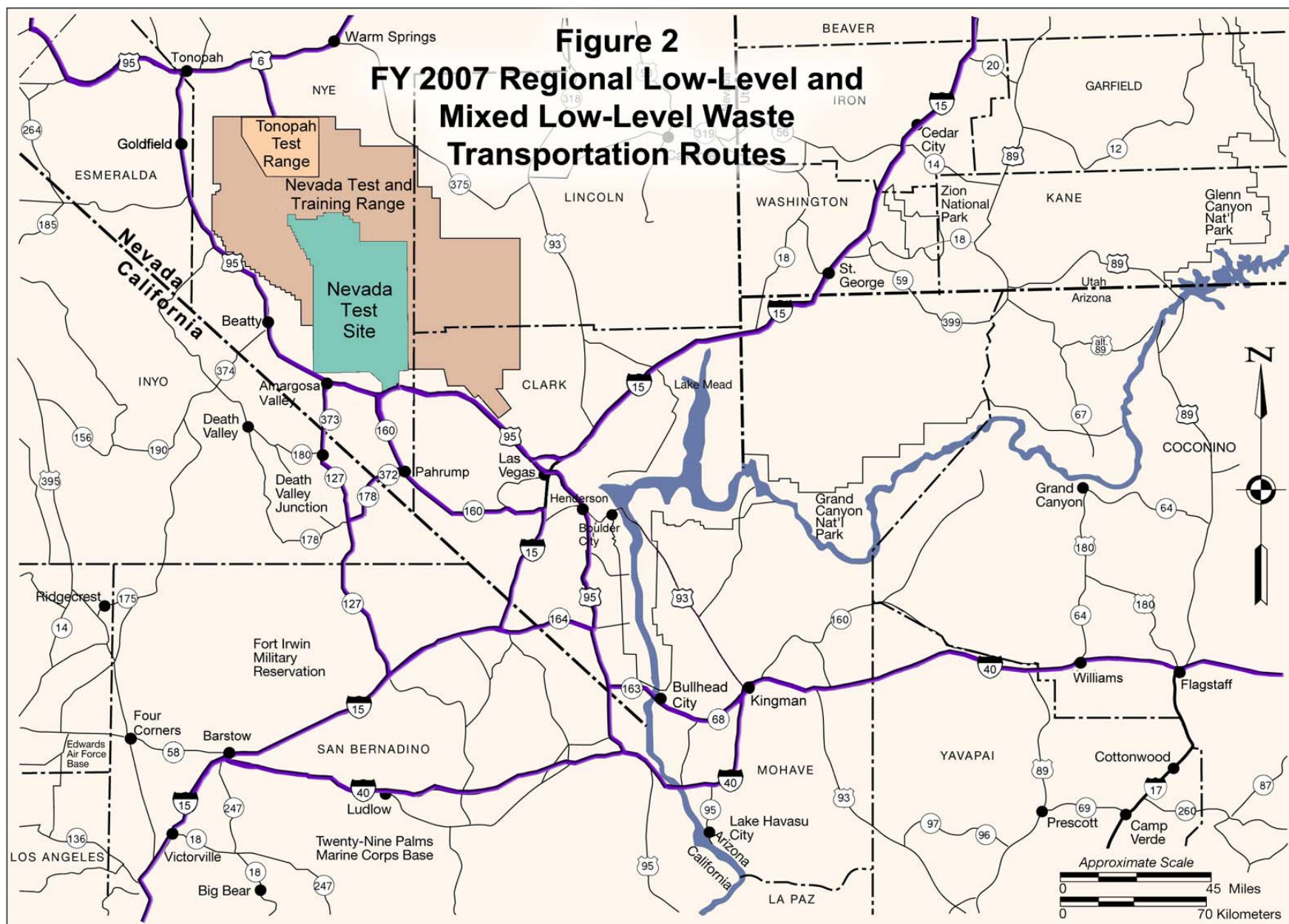


Table 8. Shipment Summary of Off-site, Inbound Regional Routes for FY 2007

DESCRIPTION	BN	BW	DP	DR	FW	IN	LL	NF	OR	PD	PF	PL	PO	PX	SA	SR	WV
I-15 (MESQUITE), I-215, US-95 (NORTH BELTWAY)													1				
I-15, CA-127, CA-178, NV-372, NV-160, US-95	17						11										
I-15, CA-127, NV-373, US-95	1						33										
I-15, NV-160, US-95							1										
I-40, I-15, CA-127, NV-373, US-95													3				
I-40, I-15, NV-160, US-95					1								1				
I-40, US-93, AZ-68, NV-163, US-95, NV-164, I-15, NV-160, US-95		38				6		1	5	1	3		4			1	
I-40, US-93, AZ-68, NV-163, US-95, US-93, I-515, US-95 (SPAGHETTI BOWL)																2	
I-40, US-95, NV-164, I-15, CA-127, NV-373, US-95		1	14								7	1	10	1	1	2	
I-40, US-95, NV-164, I-15, NV-160, US-95		95	27	1	3	3		63	26		20		127	1	11	19	180
I-80, US-93-ALT, US-6, US-95						45							1				123
I-80, US-95							1										
US-50, US-6/50, US-6, US-95																	189
US-6, US-95 (TTR)			26														
US-93, US-6, US-95						4											
US-95 (CREECH AFB)			4														

2.4 Transportation Route Reporting

As a result of obligations made by former DOE Secretary Richardson, the transportation of inbound LLW shipments through the Las Vegas I-15 and US-95 Interchange (Spaghetti Bowl) has substantially decreased since FY 2000.

Due to the events of September 11, 2001, tractor trailers are no longer allowed to travel across Hoover Dam. The U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) continues to engage in discussions with the generators regarding avoidance of the Spaghetti Bowl. The NTS Waste Acceptance Criteria includes wording requiring generators to notify their carriers to avoid Las Vegas, Nevada.

However, on November 16, 2006, two (2) LLW shipments en route from the Savannah River Site to the NTS traveled through the Spaghetti Bowl. The incident was researched thoroughly and the generator implemented required corrective actions to ensure there were no recurrences.

NNSA/NSO continues to honor an additional obligation made by former Secretary Richardson, and endorsed by the current administration, by preparing quarterly reports disclosing which routes transporters used to reach the NTS. These reports may be found on the Internet at <http://www.nv.doe.gov/emprograms/environment/wastemanagement/quarterlyreports.aspx>

3.0 INCIDENT/ACCIDENT DATA

For the purpose of this report, an incident is defined as a traffic-related accident, a load shift, or a reported leaking/breached package which occurs during transportation.

Generators are instructed to notify the NNSA/NSO Assistant Manager of Environmental Management whenever a discrepancy, non-compliance, or inadequate performance is identified; or if a transportation incident or emergency situation occurs. There were two (2) U.S. Department of Transportation reportable transportation incidents in FY 2007.

- On February 6, 2007 at I-40 Mile Marker 68, outside of Clinton, OK, after being struck by another vehicle, a flatbed truck transporting LLW from Gore, OK to the NTS rolled onto its side. The container was damaged; but did not sustain a breach. The package was returned to its origination point, where the drums were repackaged and eventually shipped to the NTS.
- On February 9, 2007, during offloading operations of a cargo container, contamination was found on the trailer floor. Upon further investigation, liquid was found coming out of the bottom of the cargo container. The trailer was

decontaminated and released. The appropriate notifications were made to the National Response Center pursuant to 49 CFR, §171.15 and §171.16.

National Security Technologies, LLC (NSTec) personnel control NNSA/NSO waste receipt and disposal activities at the NTS and are responsible for notifying appropriate personnel regarding any non-compliant or refused radioactive waste shipments. NSTec personnel also immediately notify generators in the event of any shipping paper discrepancies.

Below is a summary of issues observed during waste receipt and disposal activities in FY 2007. These issues are reported to the generators who then implement appropriate corrective actions to prevent recurrence.

- A package was received with two 4"x6" holes in the lower front side of the soft-sided waste container. No contamination was detected.
- After arrival, a cargo container was observed leaking liquid. No radiological contamination was detected in the leaking liquid. The container was returned to the generator. The vehicle driver contacted the National Response Center pursuant to 49 CFR, §171.15, however it was not a DOT reportable event.
- A shipment arrived at NTS and drivers indicated that they took a route that took them through the Las Vegas valley via the northern portion of Clark County-215 to US-95 North.
- A shipping manifest contained a discrepancy between the label on one (1) waste package and the shipping manifest. The manifest listed a Transport Index (TI) of 5.8, while the waste package label listed a TI of 4.2. The correct TI for the package was 4.2.
- Discrepancies between dose rates listed on the Package, Storage, and Disposal Request (PSDR) and actual dose for shipments were observed during our pre-entry and offloading surveys. Contact dose readings listed on the PSDR were much lower than what those measured.
- A shipment arrived without a hardcopy of the PSDR.
- A PSDR for a shipment listed incorrect number of packages.
- Shipping papers did not contain the PSDR or LLW Certification Statements.

4.0 EVALUATION OF SHIPPING CAMPAIGNS

Two of the 1,136 off-site inbound and none of the 11 off-site outbound shipments experienced incidents while in transit to/from the NTS. None of the 130 on-site transfers experienced incidents while being transported on the NTS. All generator shipping campaigns were considered successful.

One outbound shipment of MLLW to Energy *Solutions* generated a notice of deficiency from the State of Utah Department of Environmental Quality concerning missing hazard labels. NSTec researched the occurrence, implemented corrective actions, and reported back to the State of Utah - which then closed the matter. All outbound shipping campaigns were considered successful.

5.0 REFERENCES

The primary sources of shipment information in this report are records kept by the NSTec Waste Management Program, who manages the NTS RWMS at Area 3 and Area 5. These records provide detailed information on each shipment of LLW and MLLW (dates received, generators, number and type of waste packages, volumes, weight, carrier, and final disposition of shipments). In addition, incident and accident information is gathered by reviewing other NSTec and NNSA/NSO correspondence and through personal communication with NNSA/NSO managers, NSTec management and program personnel, representatives from the waste generator facilities, and carrier personnel. Route information is gathered from quarterly routing reports generated by NNSA/NSO.

The following source documents are incorporated by reference:

- U.S. Department of Energy, Nevada Operations Office, "Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada" DOE/EIS 0243, Las Vegas, Nevada, August 1996.
- U.S. Department of Energy, Nevada Operations Office, "Mitigation Action Plan - Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada" DOE/EIS 0243, Las Vegas, Nevada, February 1997.
- U.S. Department of Transportation Regulations, 49 CFR, "Transportation," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, 1998

6.0 POINTS OF CONTACT

Please contact the following personnel for questions concerning the transportation of radioactive waste at the NTS or for requests for information relating to waste management and NNSA/NSO operations.

WASTE MANAGEMENT

E. Frank DiSanza, Federal Project Director
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Nevada Site Office
Waste Management Project
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7.0 ACRONYM LIST

ft³	Cubic Feet
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
dpm	Disintegrations per minute
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
LLW	Low-Level Radioactive Waste
MLLW	Mixed Low-Level Radioactive Waste
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NRC	U.S. Nuclear Regulatory Commission
NSTec	National Security Technologies, LLC
NTS	Nevada Test Site
PSDR	Package, Storage, and Disposal Request
RWMS	Radioactive Waste Management Sites
TRU	Transuranic Waste
WIPP	Waste Isolation Pilot Plant

8.0 DISTRIBUTION LIST

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